

In the Claims:

Claims 1 to 15 (canceled)

16. (previously presented) A method for measuring the fluorescence of a particle having a plurality of dyes, the method comprising:

- a) interrogating a particle with a first excitation light source;
- b) detecting the interrogation of the particle with the first excitation light source using a scatter detector configured to only detect light from the first excitation light source;
- c) detecting any fluorescence emitted by the particle using a fluorescence detector when it is detected that the particle is being interrogated by the first excitation light source;
- d) interrogating a particle with a second excitation light source;
- e) detecting the interrogation of the particle with the second excitation light source using a scatter detector configured to only detect light from the second excitation light source; and
- f) detecting any fluorescence emitted by the particle using the fluorescence detector when it is detected that the particle is being interrogated by the second excitation light source; and dynamically assigning fluorescence detected in steps c) and f) to specific ones of the plurality of dyes depending on the excitation light sources.

17. (canceled)

18. (canceled)

19. (previously presented) A system for measuring the irradiance of a particle labeled with a plurality of fluorescent labels, consisting essentially of:

- a cytometric flow chamber having a flow path for passage of the fluorescently labeled particle;
- a plurality of excitation light sources, each emitting a beam of light incident on the cytometric flow chamber;

a plurality of scatter detectors in optical communication with the flow path of the cytometric flow chamber, each configured to detect light from only one of the plurality of excitation light sources and arranged so as to detect scattered light from the fluorescently labeled particle as it passes through the flow path of the cytometric flow chamber;

a plurality of triggers, each of the plurality of triggers being coupled to a separate corresponding one of the plurality of scatter detectors, and each trigger emitting a signal when scattered light incident on the corresponding scatter detector exceeds a predetermined threshold value;

collection optics in optical communication with the flow path of the cytometric flow chamber to collect emissions from the fluorescently labeled particle;

a plurality of fluorescence detectors to receive the emissions collected by the collection optics and generate an output, each of the fluorescence detectors being configured to respond only to a discrete number of wavelength bands; and

a plurality of integrators, each integrator being coupled to a separate corresponding one of the plurality of triggers, and each integrator being configured to record the output of at least one of the plurality of fluorescence detectors in response to a signal from the corresponding trigger;

wherein each of the plurality of integrators is controlled only by a separate one of the plurality of triggers in response to scattered light incident on one of the scatter detectors; and

wherein the output of each integrator is dynamically assigned to one of the fluorescent labels depending on which laser is interrogating the particle.

20. (original) The system of claim 19 further comprising a controller coupled to the plurality of integrators and the plurality of triggers, the controller being programmed to control the plurality of integrators and the plurality of triggers to prevent anomalous data from being acquired.

21. (new) The system of claim 19 wherein:

the excitation light sources are positioned about an excitation light axis;
a fiber optic bundle is configured around the excitation light axis, the fiber optic bundle containing a plurality of sets of optical fibers; and
each set of optical fibers is optically coupled to a different one of the scatter detectors.

22. (new) The system of claim 19 wherein at least two excitation light sources are focused to overlap in the flow path of the flow chamber.

23. (new) The system of claim 19 wherein each of the plurality of scatter detectors further comprises a photodiode.

24. (new) The system of claim 19 wherein at least one fluorescence detector comprises a photomultiplier tube.

25. (new) The system of claim 19 wherein at least one of the plurality of excitation light sources comprises a laser.